REQUESTED AMENDMENTS TO THE SPECIFICATION

Please enter the following amendments to the specification as indicated below.

In the specification at page 1, beginning at line 1, please amend the paragraphs as follows:

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~~IN THE UNITED STATES PATENT AND TRADEMARK OFFICE~~

~~UTILITY PATENT APPLICATION~~

~~**********~~

~~INVENTOR: Schlurnberger~~
~~TITLE: Method For Transferring and Separating Telephone Call Data~~
~~**********~~

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~~DATE: October 29,2003~~

METHOD FOR TRANSFERRING AND

SEPARATING TELEPHONE CALL DATA

~~PRIORITY~~

This ~~patent is a continuation of~~ application claims priority to Provisional Patent Application No. 601422,399 filed October 29,2002.

~~BACKGROUND OF INVENTION~~

~~FIELD OF INVENTION~~

FIELD OF THE INVENTION

The present ~~invention~~ subject matter relates to specialized telephone equipment and corresponding data transfer methods.

~~PRIOR ART~~

BACKGROUND OF THE INVENTION

In the specification at page 3, at line 21, please amend the line as follows:

~~GENERAL DISCUSSION OF THE INVENTION~~

SUMMARY OF THE INVENTION

In the specification at page 4, beginning at line 16, please amend the paragraph as follows:

The present invention uses ~~Programmable Logic Levels~~ Phase Locked Loops (PLLs) clock switchover management to maintain the timing of two or more "clocks". Data bytes made of multiple data bits are packaged and the packages are time coded utilizing NRZI data packaging at a local clock. For this packaging, the clocks are adjusted on voltage changes which are timed with zero bits at the end of the longer strings of non-zero data bytes of packaged bits. Using ~~Programmable Logic Levels~~ Phase Locked Loops (PLLs) for data transmission the features are used for system-level clocking management. PLL circuitry features include clock switchover, PLL re-configuration, spread spectrum clocking, and programmable bandwidth.

In the specification at page 5, beginning at line 17, please amend the paragraph as follows:

Newer features can be added by attaching a desired data generator device to the phone circuit board and changing the programming introduced into the system ~~API~~ Application Programming Interface (API) and controlled by customizable software modules for encoding and decoding the data and for prioritizing the data streams based on this programming.

In the specification at page 5, beginning at line 21, please amend the paragraph as follows:

The protocol used not only changes or varies the data format for different data types, but also changes the way that the data is packaged in order to get maximum benefit from the available bandwidth given the user specified priorities in the software. If, for example, the voice is to come in first, then the software loaded on the CPU is able to allow for the voice to come in prioritized, although potentially at a reduced quality, and fit [to] in also the remaining non-voice data as required and allowed by band width. Ultimately, all data (subject to user elected dumping) makes it from the phone to the CBU and from the CBU to the remote data processor ~~30~~ (server computer 30). The data comes in on a specified and configurable priority which is programmatically set.

In the specification at page 6, beginning at line 14, please amend the paragraph as follows:

It is therefore one purpose of the invention to provide for digital service of multiple phones without rewiring on existing service. No DSL type equipment is required, nor is any type of DSL type protocol or system used. Line multiplexers ~~multi-plexors~~, data splitters, DSL DSP's and DSL type firmware and hardware is not required on this system .The technology developed provides a high content digital service without the added expense and more restrictive wiring and equipment requirements of DSL type service. This technology can be retrofitted by using existing low speed lines at a much lower expense and less system overhead.

In the specification at page 7, beginning at line 14, please amend the paragraph as follows:

Figure 1 shows a phone and central block unit used in conjunction with the method taught herein[.];

Figure 2 shows the interface between the units shown in Figure 1 and a central computer[.];

Figure 3 shows a process diagram of the interaction of the units shown in Figure 2 used in conjunction with analog phones[.];

Figure 4 shows a process diagram of the interaction of the units shown in Figure 2[.];

Figure 5 shows how several phones can be arranged into a single interface; and

Figures 6a-6e and 7 illustrate an exemplary data transmission methodology in accordance with present technology.

In the specification at page 7, beginning at line 21, please amend the paragraph as follows:

As can best be seen by reference to ~~Figure 1~~ Figures 1 and 2, the wiring of the system involves, in the simplest embodiment, utilizing a first single twisted pair for communication (voice pair 4) and a second twisted pair to operate the digital phone's main system power (power pair 5).

In the specification at page 8, beginning at line 22, please amend the paragraph as follows:

At existing sites, the old lines and original wiring already located may be retrofitted phone block. Where new lines are pulled and a new phone installed a set of wires 28 (usually Cat. III wiring but requiring only twisted pair wiring) is used to carry power of 24-48 volts (traditionally tip and ring) to the phone from an existing source or a new power

source 44 (Figure 2). The phone will preferably accept a voltage range from 20 VDC to 56 VDC. This wiring will usually pass through a wiring block interface 7. This interface 7 could be one or more Immediate Distribution Frames (IDF) for example. The interface 7 allows a single line from the power source 44 to power multiple phones. It could originate from buildings Main Distribution Frame (MDF) in the fashion known in the art; ultimately ending up at the source DC power supply 44 (Fig. 2).

In the specification at page 9, beginning at line 9, please amend the paragraph as follows:

In most cases, the IDF is fed input from an MDF and ends up at the phone with no other IDF interfaces between. An example would be a multi story building which would have a bottom floor MDF distributing to the other floors IDF's which would feed the phones on each floor. An MDF or IDF can run every phone in any configuration on an analog setup. An example of 2 ways of using this with the ~~invention~~ present subject matter are shown in Figures 3 and 4.

In the specification at page 10, beginning at line 12, please amend the paragraph as follows:

In the preferred embodiment, there are micro-processors in the CBU 32 and the phone 1. The phone has housing circuitry in the form of a circuit board.

In the specification at page 11, beginning at line 9, please amend the paragraph as follows:

The phone communicates via the digital data line formed by the voice pair 4 (2-5 VDC wire pair) to the CBU 32 which then connects from the CBU 32 to the call manipulation servers, here CPU CBU 18 via USB cable 34 and a two (2) twisted pair/four (4) wire cable 35 with a RJ45 connection on each end. One end of the RJ45 cable connects to the CBU 32 and the other end connects to a PC1 T1 card 61 installed in the (CBU CPU 18) which may be a computer based system of the type described in U.S. Patent Application Filed 2/29/00 SN: 09/516,381.

In the specification at page 11, beginning at line 15, please amend the paragraph as follows:

The CBU 32 communicates to the CBU CPU 18 via the aforementioned interfaces, [(]USB for camera and print data and the RJ45 connection cable for all other data including voice with a storage means, hard drive 36, to retain the data transmitted from the print phone CPU 21 to the CBU CPU 18; ultimately ending up on the server computer, SCC 30, with any specified storage medium (here hard drive(s) 36). An API program or chip with program is running on the controller computer (SCC 30) to handle communications from the CBU 32. The CBU 32 is transmitting and receiving data as needed through synchronous, bandwidth on demand, digital communications from each digital fingerprint phone housing 1 attached to the CBU 32 as described above. Specialized software modules are running on the Windows based computer system and communicate programmatically to the CBU API also running on the computer system as previously described.

In the specification at page 12, beginning at line 9, please amend the paragraph as follows:

This storage medium in which received data is stored, driven, and accessed is processed and controlled by the software modules received by special communications with the CBU's API running on the computer system, [(]co-existing and running with

software modules on the phone and CBU 32. Different storage types would be more useful at different locations. For example short term phone RAM 4 1 storage may be more useful at the phone where only short term storage is required. The CBU CPU 18 could have CBU ram 39 and the CBU CPU 18 a hard drive 38 depending on the level of control required at that level. The system controller computer SCC 30 would have both RAM 40 and hard drive 36.

In the specification at page 12, beginning at line 21, please amend the paragraph as follows:

The CBU 32 provides the communications and powered digital signaling required to operate the "print phone" 1 and its associated circuitry. This is achieved through the second pair of wires described as the voice pair 4 running from the ~~Arnphenol~~ Amphenol connector 23 located on the back of the CBU circuit board 43 and possibly passing through a MDF/IDF interface or equipment rooms housing punch down and/or wiring blocks (interface 7) allowing the CBU 32 to operate up to 24 digital phones 1 per cable 23. Each phone operated requires the one (1) extra twisted pair per housing be present and connected for a total of 48 wires (24 pairs for 24 phones) not including the 20-56 VDC described which may use a single line 5 to multiple phones.

In the specification at page 13, beginning at line 12, please amend the paragraph as follows:

One alternative would be to have the phones have a battery [70] (not illustrated) which would charge using the one two wire set, voice pair 4, while the port was not in use. The phone would then switch to a communication mode when the phones went off hook[,]. The battery [70] could receive [a separate] charge [as shown in Figure 5] from a separate source.

In the specification at page 14, beginning at line 3, please amend the paragraph as follows:

From the punch down or wiring block, interface 7, wires 28, including at least 1 wire pair 4 run to each phone for the communication signal in the preferred embodiment, although these may be separated using the existing phone lines as described above. The CBU 32, for purpose of digital communication, provides enough power to power the entire connector 23 (whip cable) for phone powered by a single array of phones (24 lines) in the preferred embodiment (shown in Figure 3). It is possible to run a higher number of digital phones by adding additional Channel Bank Units 32 or additional cable interface assemblies 46 attached to ports 45 on the CBU circuit board, although each CBU 32 circuit board typically has some port 45 limit. One cable interface assembly [45] 46 is shown in Figure 2 being used, a second port 45 is shown without a cable attached.

In the specification at page 14, beginning at line 14, please amend the paragraph as follows:

Deviation from typical category three or five wire is permitted. Some installation survey results have noted only two (2) twisted pairs pulled to each phone mounting location. As shown in Figure [3] 1, with a third wire pair 3 allows a power independent carrier 47 could be run from the CBU 32 by pairs 3.

In the specification at page 18, beginning at line 3, please amend the paragraph as follows:

As can best be seen by reference to Figures 1 and 2 in the preferred embodiment, the invention utilizes a standard telephone interfacing (with a standard jack not shown) which carries up to four pairs of line, 3 pair, 3, 4, and 5 shown here. Two wires (4) are used for the digital communication function of the telephone and two wires (5) are being available for carrying a higher voltage to power the telephone 1. The phone uses only two twisted pair, one digital to the phone, one voltage supply to the phone. No high voltage ring lines, are used. By virtue of the digital technology, additional circuits on the board or additional unconnected resources (like camera or biological marker with its own communications protocol [47]) may be connected to take advantage of the extra lines 3 if available and needed.

In the specification at page 20, beginning at line 6, please amend the paragraph as follows:

The data originating at the CBU, CBU CPU or SCC is combined at the CBU by the CBY APT 45 and CBU CPU 18. In some cases this may be done at the SCC. The SCC functions may also be incorporated into the CBU CPU 18 eliminating the need for a separate SCC.

In the specification at page 20, beginning at line 6, please amend the paragraph as follows:

The local central processing unit 18 may be connected to any type of storage (item [32] 22) to store data for any period of time in order to allow the remote user to acquire data which was not previously sent. Preferably this storage at item 22 would be sent to item 38 as soon as possible to prevent loss at the local phone because of damage, overload, etc.

In the specification at page 20, beginning at line 21, please amend the paragraph as follows:

In one example, video one data is turned into still pictures or short bursts of video or degraded video while maintaining a copy of the full video. The short burst of video sent over the data lines, is in a compressed format and viewed by the remote user after separation and decoding to a DSL or other format. The remote user at GUI [23] 33 or the SCC, if so determined, can instruct the local processing units 18 or 21 to maintain a copy of the data in a larger or smaller (less complete) format which is determined automatically, by usage or usage times or which can be set according to the requirements of the remote user.

In the specification at page 21, beginning at line 18, please amend the paragraph as follows:

For purposes of this discussion, the credit card reader 12 [2] refers to any card reader for cards containing information required to transfer the data including PIN number data without actual charging data.

In the specification at page 21, beginning at line 21, please amend the paragraph as follows:

By allowing for the separate classification data by type with a call at a particular time and by method of transmission and by best compression, and by having a telephone signal or data signal enhancer, the present invention allows the data lines which may be very low density lines [are] to be utilized in order to transmit a large amount of information relative to their data carrying capacity and allow them to provide the data in a greatly enhanced fashion when the data is reinterpreted at the remote processing unit. Time once associated with another unit (e.g. a number assigned by software with the call) may be replaced for data transmission with the other unit (the number in this example).

In the specification at page 23, beginning at line 6, please amend the paragraph as follows:

The phone CPU is attached to at least one circuit board which board communicates by way of electronic attachment with (1) a camera 13, (2) a speaker/microphone 15, (3) a finger print reader 11 and (4) a handset [3] 31. Other devices may also be attached as allowed by compatibility.

In the specification at page 24, beginning at line 9, please amend the paragraph as follows:

The second wire set provides a five volt digital signal used for communications (DTMF and voice) and for powering the phone circuit board. In order to minimize power usage and improve performance, the phone uses a magnetic sensor 48 for an off hook signal which switch is also connected to and powered by the phone circuit board 19. The magnetic sensors built into the phone cradle use the magnetic speaker 50 within the handset [3] 31 to determine if the hand set is present or not. If not present, the sensor communicates with the phone CPU which generates the appropriate 'off hook' signal.

In the specification at page 25, beginning at line 3 through page 26, line 18, please amend the paragraphs as follows:

The steps of ~~this process are:~~ the data transmission methodology in accordance with the present technology may be seen from Figures 6a – 6e, while the data retrieving portion of the methodology may be seen in Figure 7 as follows:

1) Determining the types of data desired 602 to create a data group from the group consisting of voice, picture, bio-marker (finger print, retinal scan, etc.), card holder information (credit card number, etc.), DNIS and ANI call data, etc;

2) Writing a protocol to prioritize the data types 604;

3) Adding a reader 606 to receive the data;

4) Reading the data 608 from the reader involving:

(A) creating at least one circuit board 622;

(B) connecting the readers 624 to the circuit board;

5) Compiling the information 608 from the readers including the steps of:

(A) selecting the most efficient form for transmission of the data 626 of each data type;

(B) converting the data 628 to a digitized forms corresponding to the efficiency determined by having wave type data converted into digital signals which are given a services of values (0 or 1) as a bit;

(C) storing data 640 which is not ready to send;

(I) determining the amount of data to store 642

(11) prioritizing data to be stored 644

(D) determining the size of bytes 632 containing the individual bits of data for each data type;

(E) packaging the bytes 634 to be sent

(F) attaching at least one time reading 636 to each data byte made up of digital data bits.

(G) attaching a time reading for at least one predetermined period 638 which time reading may be separated out (as a separate byte) to allow a remote clock to keep in time with the local phone clock;

6. Streaming data 612 into bytes in association with the time marker into a transmission stream along with an identifier identifying the type of data being sent by;

(I) the format 640,

(11) attaching an initiating multi-bit or single bit identifier 642,

(111) ordering the data 644;

7. Retrieving the data 702 out of the data stream;

8. Separating the data 704 by type based on the identifier

9. Maintaining the data 706 with the time marker for at least one data type;

10. Using the time marker 708 to maintain the time order of at least one form of the data for later transmission and alignment of different data types;

11. Determining the best method for transmitting data 710; and

12. Sending the data 712 by at least one, and preferably a plurality, of transmission data streams separated electronically.

In the specification at page 26, beginning at line 19, please amend the paragraph as follows:

The method ~~claim can be altered so that~~ may also provide in the step of streaming data ~~includes~~ the step of multiplexing the data by determining the amount of one data stream required while still allowing ~~an other~~ another data stream;

In the specification at page 27, beginning at line 7, please amend the paragraph as follows:

Using ~~NIZI~~ NRZI clock protocol with 1 to 0 balancing type speeds may be one protocol used in conjunction with the telephone timing signals set forth above to keep the phone and CBU and main monitoring CPU in communication.

In the specification at page 27, beginning at line 17, please amend the paragraph as follows:

Figure 3 shows a modification where there are analog phones [56] 1b and digital phones 1a. Power is shown through separate lines going separately in this case to analog and digital phones.

In the specification at page 28, beginning at line 3, please amend the paragraph as follows:

The data signal comes through a data wire pair 4 through a wiring block (66 block) if the multiple phones are directly from the wiring block 7c in the equipment room 65 which in turn connects the data pair 4a to a CBU 32 which communicates with a separately assembled CPU (in this case a controller computer) 18 by way of a USB port 34. Between the channel block 7c and the CPU is a 24 line ~~anthenol~~ ampthenol connector 23.

In the specification at page 28, beginning at line 8, please amend the paragraph as follows:

The CPU 18 communicates via a port 61, a T1 port and a central office 60. It also receives power from a second power supply 44. The controller computer (CBU CPU 18) in this example is connected directly in this case via a second ~~anthenol~~ ampthenol cable 54 to a punch down block [72] 7d which is connected directly to analog phones 1b, which, in this case, will not function as a digital phone but as normal phones connected directly to the computer and providing an analog connection. For these lines, the computer provides an analog connection or a digital conversion through the T1 card to the central office.

In the specification at page 28, beginning at line 15, please amend the paragraph as follows:

Figure 4 shows a similar arrangement to that in Figure 3 wherein the system is improved to allow for two twisted pairs per phone, one being a data pair 4, and the other one being power pair 5 coming respectively from a data box 7a and a power box 7b. Power box 7b receives power from a 48 volt VC power supply and 44[a] in the IDF equipment room 66. The data going to the data block 7a is, in turn, attached in the NDF equipment room 65 via a second wiring block 7c to the 24 port CVU 32 which is

connected to the CPU 18 which is a separate computer in this embodiment via a RJ45 cable 69 and a USB cable 34.

In the specification at page 29, beginning at line 4, please amend the paragraph as follows:

In this case, remote monitoring station houses the remote hard drive 36. Figure 5 shows how several phones can be arranged into a single interface 7. Differences in this embodiment are that local to the phones 1 is a local battery [70], a common phone storage 62 and one of the lines is a common storage line [53] 33 (which may be multiple lines) which use excess lines to carry non-voice data directly to the CPU 18 so the phone lines may remain constantly interfacing from a voice standpoint with the CPU 18 through a common storage line [53] 33 dedicated for that purpose which would otherwise be available for an individual phone block. Since the data may be associated with a marker identifying not only the time but also the source phone, this data may be aligned with data from the telephone at some later point in time.